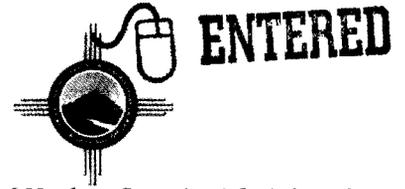


Environmental Programs
 P.O. Box 1663, MS M991
 Los Alamos, New Mexico 87545
 (505) 606-2337/FAX (505) 665-1812

TADO



National Nuclear Security Administration
 Los Alamos Site Office, MS A316
 Environmental Restoration Program
 Los Alamos, New Mexico 87544
 (505) 667-4255/FAX (505) 606-2132



Date: April 06, 2009
Refer To: EP2009-0173

James P. Bearzi, Bureau Chief
 Hazardous Waste Bureau
 New Mexico Environment Department
 2905 Rodeo Park Drive East, Building 1
 Santa Fe, NM 87505-6303

Subject: Submittal of the Observation Plan for Demolition of the Bayo Canyon Wastewater Treatment Plant, Area of Concern 00-018(b), by Los Alamos County

Dear Mr. Bearzi:

Enclosed please find two hard copies with electronic files of the Observation Plan for Demolition of the Bayo Canyon Wastewater Treatment Plant, Area of Concern 00-018(b), by Los Alamos County.

If you have any questions, please contact Becky Coel-Roback at (505) 665-5011 (becky_cr@lanl.gov) or Cheryl Rodriguez at (505) 665-5330 (crodriguez2@doeal.gov).

Sincerely,

Michael J. Graham, Associate Director
 Environmental Programs
 Los Alamos National Laboratory

Sincerely,

David R. Gregory, Project Director
 Environmental Operations
 Los Alamos Site Office



MG/DG/BCR/sm

Enclosure: 1) Two hard copies with electronic files - Observation Plan for Demolition of the Bayo Canyon Wastewater Treatment Plant, Area of Concern 00-018(b), by Los Alamos County (LA-UR-09-1814)

Cy: (w/enc.)
Becky Coel-Roback, EP-CAP, MS M992
Cheryl Rodriguez, DOE-LASO, MS A316
RPF, MS M707 (with two CDs)
Public Reading Room, MS M992

Cy: (Letter and CD and/or DVD only)
Laurie King, EPA Region 6, Dallas, TX
Steve Yanicak, NMED-OB, White Rock, NM
Kristine Smeltz, EP-WES, MS M992
EP-CAP File, MS M992

Cy: (w/o enc.)
Tom Skibitski, NMED-OB, Santa Fe, NM
Keyana DeAguero, DOE-LASO (date-stamped letter emailed)
Michael J. Graham, ADEP, MS M991
Alison M. Dorries, EP-WES, MS M992
David McInroy, EP-CAP, MS M992
IRM-RMMSO, MS A150 (date-stamped letter emailed)

LA-UR-09-1814
April 2009
EP2009-0173

**Observation Plan for
Demolition of the
Bayo Canyon Wastewater
Treatment Plant,
Area of Concern 00-018(b),
by Los Alamos County**

Prepared by the Environmental Programs Directorate

Los Alamos National Laboratory (LANL), operated by Los Alamos National Security (LANS), LLC, for the U.S. Department of Energy under Contract No. DE-AC52-06NA25396, has prepared this document to support the investigation and cleanup, including corrective action, of contamination at LANL, as required by the Compliance Order on Consent, signed March 1, 2005. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

EXECUTIVE SUMMARY

Area of Concern (AOC) 00-018(b), the Bayo Canyon Wastewater Treatment Plant (WWTP), is the site of an inactive municipal WWTP located near the confluence of Bayo and Pueblo Canyons within the Pueblo Canyon Aggregate Area at Technical Area 00. The Bayo Canyon WWTP was operated by the County of Los Alamos (the County) from 1963 to 2007, and there is no documentation this WWTP ever received wastes from Los Alamos National Laboratory (the Laboratory). In October 2007, the Bayo Canyon WWTP was replaced by a newly constructed WWTP and taken offline. The County intends to demolish the Bayo Canyon WWTP starting in summer 2009.

The results of characterization sampling at AOC 00-018(b), conducted in 1996 and 2006, indicated low concentrations of chemicals of potential concern, consistent with the industrial use of the site over more than four decades. The nature and extent of contamination were defined, and the site was found to pose no potential unacceptable risk under residential, industrial, recreational, and construction worker scenarios. The findings presented in the investigation report for the Pueblo Canyon Aggregate Area further indicate that the Bayo Canyon WWTP has not been impacted by Laboratory operations.

The New Mexico Environment Department requires that the U.S. Department of Energy and the Laboratory observe demolition activities at the Bayo Canyon WWTP to verify that no contaminant migration or worker exposure, presumably as a result of wastes from past Laboratory practices, occur during demolition. The proposed activities include providing

- on-call support to the County during demolition of the aboveground portions of the WWTP;
- on-site observation during groundbreaking activities;
- photographic documentation, as needed;
- full-time radiation control technician support during groundbreaking activities;
- sample collection for radiation screening, if needed; and
- waste characterization sampling, if needed.

This observation plan describes proposed Laboratory activities in support of the County's demolition of the Bayo Canyon WWTP.

CONTENTS

1.0 INTRODUCTION 1

 1.1 General Site Information..... 1

 1.2 Observation Plan Objectives 1

2.0 BACKGROUND 2

 2.1 Site Description and Operational History..... 2

 2.2 Land Use 2

 2.3 Previous Site Investigations 2

 2.4 Summary of Data Evaluation..... 3

3.0 CURRENT SITE CONDITIONS 4

4.0 SCOPE OF ACTIVITIES 4

 4.1 Support during Demolition of Structures 4

 4.2 Support during Ground-Disturbing Activities 4

5.0 SCHEDULE..... 5

6.0 REFERENCES AND MAP DATA SOURCES 5

 6.1 References 5

 6.2 Map Data Sources 6

Figures

Figure 1.1-1 Pueblo Canyon Aggregate Area 9

Figure 1.1-2 Location and status of SWMUs and AOCs within the Pueblo Canyon Aggregate Area .. 11

Figure 2.3-1 Site layout and sampling locations at AOC 00-018(b)..... 12

Tables

Table 2.4-1 Summary of Inorganic Chemicals above BVs at AOC 00-018(b)..... 13

Table 2.4-2 Summary of Radionuclides Detected or Detected above BVs/FVs at AOC 00-018(b) 14

Table 2.4-3 Summary of Organic Chemicals Detected at AOC 00-018(b) 15

Acronyms and Abbreviations

AOC	area of concern
BCH	benzene hexachloride
bgs	below ground surface
BV	background value
COPC	chemical of potential concern
DDD	dichlorodiphenyldichloroethane
DDE	dichlorophenyltrichloroethylene

EP	Environmental Programs Directorate
FV	fallout value
HI	hazard index
LANL	Los Alamos National Laboratory
OU	operable unit
NMED	New Mexico Environment Department
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RPF	Record Processing Facility
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	technical area
VOC	volatile organic compound
WWTP	wastewater treatment plant

1.0 INTRODUCTION

Los Alamos National Laboratory (LANL or the Laboratory) is a multidisciplinary research facility owned by the U.S. Department of Energy (DOE) and managed by the Los Alamos National Security, LLC. The Laboratory is located in north-central New Mexico approximately 60 mi northeast of Albuquerque and 20 mi northwest of Santa Fe. The Laboratory site covers 40 mi² of the Pajarito Plateau, which consists of a series of finger-like mesas separated by deep canyons containing perennial and intermittent streams running from west to east. Mesa tops range in elevation from approximately 6200 to 7800 ft above sea level.

This observation plan addresses Area of Concern (AOC) 00-018(a), the Bayo Canyon Wastewater Treatment Plant (WWTP), which is an inactive municipal WWTP owned by the County of Los Alamos (the County). It was formerly operated by the County but is now scheduled for demolition in summer 2009.

1.1 General Site Information

AOC 00-018(b) falls within the Pueblo Canyon Aggregate Area, which consists of solid waste management units (SWMUs) and AOCs that were formerly part of Operable Unit (OU) 1071 within Technical Area 00 (TA-00). The Laboratory began operations at TA-00 in 1943 and had largely ceased using this area by 1986. Figure 1.1-1 shows the Pueblo Canyon Aggregate Area with respect to the Laboratory boundary and surrounding land holdings.

The location of AOC 00-018(b), the site of an inactive wastewater treatment plant (WWTP) located within the Pueblo Canyon Aggregate Area, is shown in Figure 1.1-2. The Bayo Canyon WWTP was operated by the County from 1963 to 2007, and there is no documentation this WWTP ever received wastes from the Laboratory. In October 2007, the newly constructed Pueblo Canyon WWTP was brought on line, and the County intends to demolish the Bayo Canyon WWTP in summer 2009.

1.2 Observation Plan Objectives

The objective of this observation plan is to describe the activities that will be conducted in support of the County's demolition of the Bayo Canyon WWTP, as directed by the New Mexico Environment Department (NMED). Per the NMED approval with modifications letter, dated August 22, 2008 (NMED 2008, 103002), the plan "must provide for photographic documentation, visual observations, field screening, and potential sampling of newly exposed site soils and other materials which may contain or release potential contaminants to the environment."

Characterization sampling was conducted at AOC 00-018(b) in 2007 in accordance with the approved investigation work plan for the Pueblo Canyon Aggregate Area (LANL 2005, 090579, p. 7-21; NMED 2005, 091388). The nature and extent of contamination have been defined, and the site was shown to pose no potential unacceptable risk under residential, industrial, recreational, and construction worker scenarios (LANL 2008, 103243). The types and concentrations of contaminants detected are consistent with the use of the site as a municipal WWTP. There is no evidence that Laboratory wastes were handled at the site.

Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with DOE policy.

2.0 BACKGROUND

2.1 Site Description and Operational History

AOC 00-018(b), the inactive Bayo Canyon WWTP, located at the intersection of Pueblo and Bayo Canyons, is owned by the county of Los Alamos. It began operating in 1963 and was upgraded in 1966 to handle wastes from the decommissioned Central WWTP, SWMU 00-019, which treated sanitary waste from TA-01 (LANL 1997, 056614, p. 5); the Bayo Canyon WWTP probably did not receive wastes from TA-01 because TA-01 was decommissioned at approximately the same time operations began at the Bayo Canyon WWTP (LANL 1997, 056614, p. 5). The Bayo Canyon WWTP received sanitary wastes from eastern Los Alamos businesses and residences until 1991, and in 1992 it began to receive sanitary waste from northern and western Los Alamos residential areas after the original Pueblo Canyon WWTP [SWMU 00-018(a)] was decommissioned (LANL 1997, 056614, p. 5). This plant has been the primary supplier of effluent for seasonal irrigation at the Los Alamos golf course and recreational ball fields since 1992 (LANL 1997, 056614, p. 51). The plant operates under National Pollutant Discharge Elimination System permit number NM0020141 (LANL 1997, 056614, p. 51).

2.2 Land Use

Current use of the site is industrial, and it is anticipated to be industrial in the future. During ground-disturbing portions of the demolition, however, the construction worker standard will be applicable. Additionally, currently no restriction to hiking or other recreational uses of the area is in effect.

2.3 Previous Site Investigations

The 1996 Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) focused on the oldest sludge beds because they were the only areas that had the potential to have been impacted by Laboratory activities. Because it was determined that no sludge-fill areas existed at the site, areas outside the oldest sludge beds were not investigated. Angled boreholes were drilled at two locations to investigate material within and beneath the old sludge drying beds (LANL 1997, 056614, p. 53). Five samples were collected from beneath the sludge beds and submitted to an off-site analytical laboratory. All samples were analyzed for metals, gamma spectroscopy analytes, tritium, polychlorinated biphenyls (PCBs), pesticides, semivolatile organic compounds (SVOCs), and volatile organic compounds (VOCs) (LANL 1997, 056614, pp. 57–58).

In 2006, additional investigation activities were conducted at AOC 00-018(b) (LANL 2008, 103243). The potential for off-site transport and releases from the active drying bed could not be determined from the historical data. Therefore, three locations were hand-augered downgradient of the drying beds towards Pueblo Canyon, and one angled borehole was drilled at location 00-25468 (see Figure 2.3-1). The angled borehole was drilled 13 linear ft at 45 degrees (9.2 ft below ground surface [bgs]) so samples could be collected beneath the drying bed, which was active at the time of sampling, without damaging the liner. All the 2006 samples were analyzed for metals, anions, cyanide, nitrate, perchlorate, PCBs, pesticides, SVOCs, VOCs, and radionuclides by gamma spectroscopy (LANL 2008, 103243).

2.4 Summary of Data Evaluation

The chemicals of potential concern (COPCs) identified for AOC 00-018(b) as a result of the both the 1996 and 2006 investigations include the following:

- Inorganic COPCs: antimony, copper, mercury, nitrate, perchlorate, selenium, silver, and zinc
- Radionuclide COPCs: europium-152
- Organic COPCs: acetone; Aroclor-1242; Aroclor-1254; Aroclor-1260; delta-BHC (benzene hexachloride); gamma-chlordane; 4-chloroaniline; 4,4'-DDD (dichlorodiphenyldichloroethane); 4,4'-DDE (dichlorophenyltrichloroethylene); 1,4-dichlorobenzene; dieldrin; toluene; and 1,3-xylene+1,4-xylene

A summary of the investigation data from AOC 00-018(b) is included in Tables 2.4-1 through 2.4-3. The analytes and concentrations detected are consistent with the industrial use of the site. There is no evidence that Laboratory wastes were handled at the site.

Of the inorganic COPCs, only perchlorate and nitrate were detected in environmental media from the site. The other inorganic COPCs were either detected only in a sludge sample collected from a pipe in 1996, or were not detected but had detection limits in excess of the background values (BVs). Perchlorate was detected at low concentrations (maximum of 0.00566 mg/kg) in three samples. All but two nitrate results were less than 5 mg/kg, which is within the expected range for naturally occurring nitrate.

Europium-152 was detected in one 1996 sample, in the middle of a borehole. There is no BV or fallout value (FV) established for europium-152; therefore, it is retained as a COPC if detected. However, based on review of the data, it is likely that this detection is actually of bismuth-214, which decays with the same energy (1408 keV gamma). Bismuth-214 is part of the natural decay chain for uranium-234 and 238, which were not detected above their respective BVs. No other radionuclides were detected above BVs or FVs in samples from AOC 00-018(b).

Of the organic COPCs, only acetone; Aroclor-1242; Aroclor-1254; Aroclor-1260; 1,4-dichlorobenzene; toluene; and 1,3-xylene+1,4-xylene were detected in environmental media from the site. The remaining organic COPCs were detected only in the 1996 sludge sample. None are detected in more than four samples, and more than half were detected at less than the estimated quantitation limit.

AOC 00-018(b) was evaluated for potential risk using the residential, industrial, recreational, and construction worker scenarios. The total excess cancer risk for the residential scenario is 4×10^{-7} , which is below the NMED target risk level of 1×10^{-5} (NMED 2006, 092513). The residential HI is 0.07 and is below the NMED target hazard index (HI) of 1.0 (NMED 2006, 092513).

The total excess cancer risk for the industrial scenario is 1×10^{-7} , which is below the NMED target risk level of 1×10^{-5} (NMED 2006, 092513). The industrial HI is 0.005 and is below the NMED target HI of 1.0 (NMED 2006, 092513).

The total excess cancer risk for the recreational scenarios is 8×10^{-8} , which is below the NMED target risk level of 1×10^{-5} (NMED 2006, 092513). The recreational HI is 0.009 and is below the NMED target HI of 1.0 (NMED 2006, 092513).

The total excess cancer risk for the construction worker scenario is 12×10^{-8} , which is below the NMED target risk level of 1×10^{-5} (NMED 2006, 092513). The industrial HI is 0.0105 and is below the NMED target HI of 1.0 (NMED 2006, 092513).

3.0 CURRENT SITE CONDITIONS

The average elevation of AOC 00-018(b) is approximately 6550 ft above mean sea level. The plant is located on a gentle slope at the base of the east end of Kwage Mesa, just above the bottom of Pueblo Canyon. Most of the site is developed, with roads and buildings covering much of the area within the AOC boundary. Surface and shallow subsurface materials present at AOC 00-018(b) reflect the disturbed nature of the site, and are primarily gravel and fill material. The angle borehole drilled in AOC 00-018(b) during 2006 encountered only fill material for 12.5 vertical ft.

4.0 SCOPE OF ACTIVITIES

NMED requires that the Laboratory observe the demolition of Bayo Canyon WWTP to verify that there is no migration of contaminants or worker exposure, presumably from historical Laboratory activities, as a result of demolition of the WWTP. Per the NMED approval with modifications letter, dated August 22, 2008 (NMED 2008, 103002), the Laboratory must conduct photographic documentation, visual observations, field screening, and, potentially, sampling of newly exposed site soils and other materials during the County's demolition activities. This support will be provided to the extent that Laboratory personnel will be on-site strictly to observe and will not direct or interfere with County employees or their subcontractors. Laboratory personnel will observe from a safe location and will avoid hazards inherent in demolition work, including vehicular traffic, heavy equipment, and overhead hazards. Further, the County is responsible for ensuring proper disposal of demolition-related waste and any media affected by the County's operation, maintenance, or demolition of the WWTP, except as described in section 4.2. The following sections describe the proposed Laboratory support activities.

4.1 Support during Demolition of Structures

During the demolition of aboveground structures at the WWTP, Laboratory Environmental Programs (EP) Directorate personnel will be on call to support County project personnel and their subcontractors. It is not anticipated that Laboratory support will be needed regularly during razing of aboveground structures. Therefore, occasional site visits and telephone support are proposed for this phase of the project.

4.2 Support during Ground-Disturbing Activities

Once ground-disturbing activities have started during the demolition of the Bayo Canyon WWTP, Laboratory personnel will be on-site during normal working hours to provide support as required by NMED (2008, 103002).

EP personnel will observe subsurface conditions as new soil and fill material are exposed. Incidences of soil staining, moisture, or other observations will be noted, and photographic documentation will be collected. Because of the industrial nature of the site for the past four decades, it is expected that some staining and moisture will be observed during groundbreaking activities. Such observations are not necessarily indicative of Laboratory contamination. When staining or moisture or other unusual conditions are observed, a radiation control technician will be on site to conduct radiological screening of the affected area. The presence of elevated radioactivity would be indicative of impacts from past Laboratory operations, because radionuclides are not expected to be present in a municipal WWTP.

If the field screening for radiation yields more than twice background readings (as determined in the field for the individual instruments), samples of the affected material will be collected and submitted to a radiation-screening laboratory for quick-turnaround analysis of gross-alpha, -beta, and -gamma radiation. If radioactively contaminated material is identified, work (including the observation activities described in

this plan) will be moved to another area, in consultation with the County project manager, until the extent of the contamination is identified. Any environmental material that either (1) exceeds BVs/FVs for radionuclides (LANL 1998, 059730) and must be removed for project reasons (i.e., cannot be reused on-site because of County work requirements) or (2) has the potential to exceed residential standards will be removed, containerized, characterized, and appropriately handled by the Laboratory.

5.0 SCHEDULE

The County anticipates starting the demolition of the Bayo Canyon WWTP in summer 2009, pending review and approval of the County's plan and bid documents by NMED's Construction Programs Bureau. The demolition of the Bayo Canyon WWTP must be completed by March 2010, per NMED's Groundwater Bureau, as a condition of the County's groundwater discharge permit. The demolition of the WWTP is anticipated to take 90 working days. The Laboratory will work with County project personnel to ensure changes in schedule and project duration are communicated to the Laboratory in a timely manner.

6.0 REFERENCES AND MAP DATA SOURCES

6.1 References

The following list includes all documents cited in this plan. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

LANL (Los Alamos National Laboratory), September 1997. "RFI Report for PRSs 0-018(a,b), Wastewater Treatment Plants," Los Alamos National Laboratory document LA-UR-97-3319, Los Alamos, New Mexico. (LANL 1997, 056614)

LANL (Los Alamos National Laboratory), September 22, 1998. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Los Alamos National Laboratory document LA-UR-98-4847, Los Alamos, New Mexico. (LANL 1998, 059730)

LANL (Los Alamos National Laboratory), May 2005. "Pueblo Canyon Aggregate Area Investigation Work Plan," Los Alamos National Laboratory document LA-UR-05-2366, Los Alamos, New Mexico. (LANL 2005, 090579)

LANL (Los Alamos National Laboratory), July 2008. "Investigation Report for Pueblo Canyon Aggregate Area, Revision 1," Los Alamos National Laboratory document LA-UR-08-4765, Los Alamos, New Mexico. (LANL 2008, 103243)

NMED (New Mexico Environment Department), September 23, 2005. "Approval with Modifications, Pueblo Canyon Aggregate Area Investigation Work Plan," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2005, 091388)

NMED (New Mexico Environment Department), June 2006. "Technical Background Document for Development of Soil Screening Levels, Revision 4.0, Volume 1, Tier 1: Soil Screening Guidance Technical Background Document," New Mexico Environment Department, Hazardous Waste Bureau and Ground Water Quality Bureau Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2006, 092513)

NMED (New Mexico Environment Department), August 22, 2008. "Approval with Modifications, Investigation Report for Pueblo Canyon Aggregate Area, Revision 1," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2008, 103002)

6.2 Map Data Sources

er_location_ids_pnt

Point Feature Locations of the Environmental Restoration Project Database; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program, ER2005-0401; 16 June 2005.

eco_trails_arc

Trails; Los Alamos National Laboratory, ENV Ecology Group; 05 April 2001.

fwo_structures_ply

Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; Development Edition of 05 January 2005.

fwo_steam_arc

Steam Line Distribution System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 05 January 2005.

ksl_paved_rds_arc

Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 06 January 2005.

lanl_contour1991_002_arc

Hypsography, 2 Foot Contour Interval; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.

lanl_contour1991_010_arc

Hypsography, 10 Foot Contour Interval; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.

lanl_contour1991_100_arc

Hypsography, 100 Foot Contour Interval; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.

er_prs_all_reg

Potential Release Sites; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program, ER2005-0403; 1:2,500 Scale Data; 21 June 2005.

ksl_dirt_rds_arc

Dirt Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 06 January 2005.

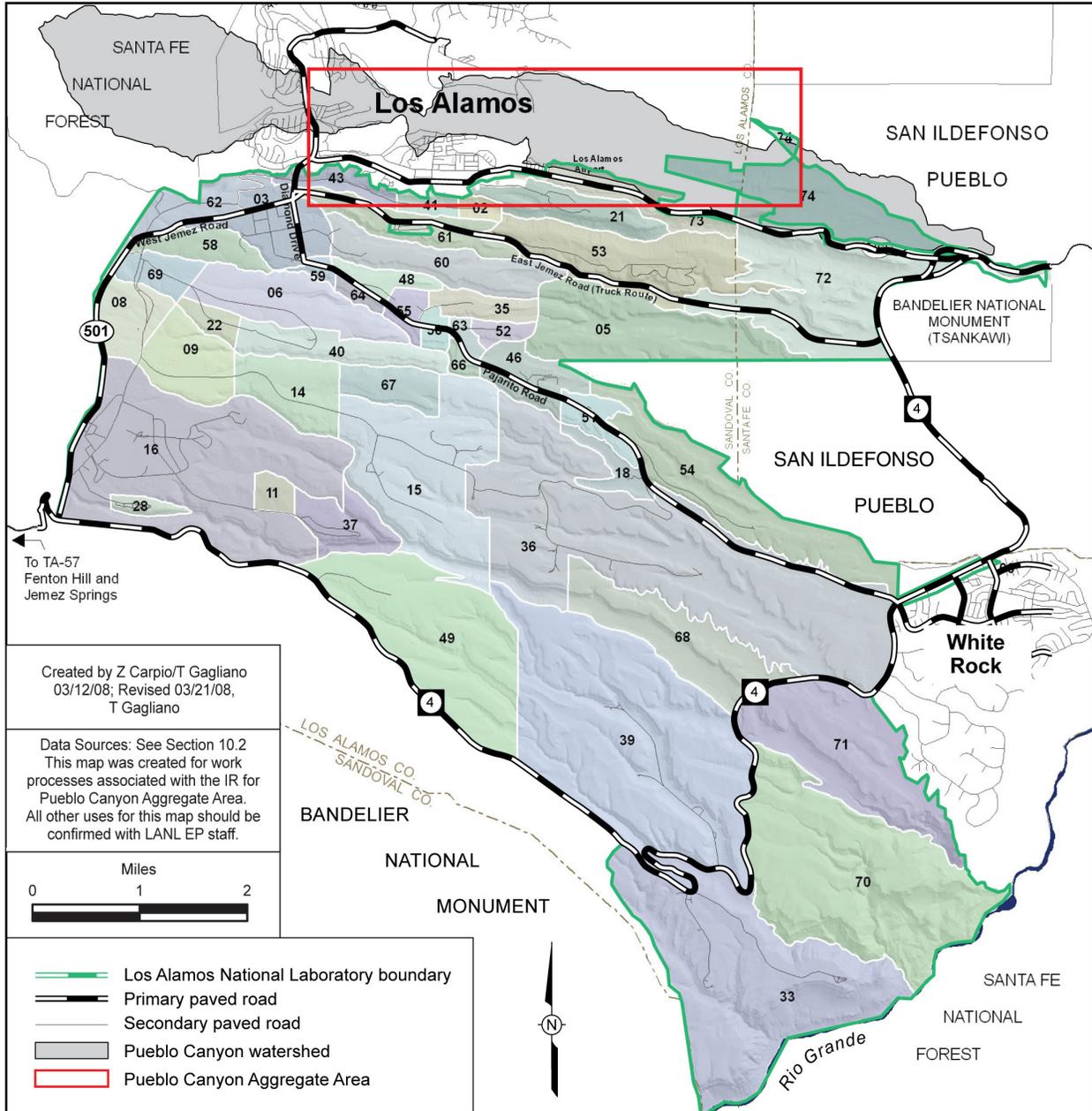


Figure 1.1-1 Pueblo Canyon Aggregate Area

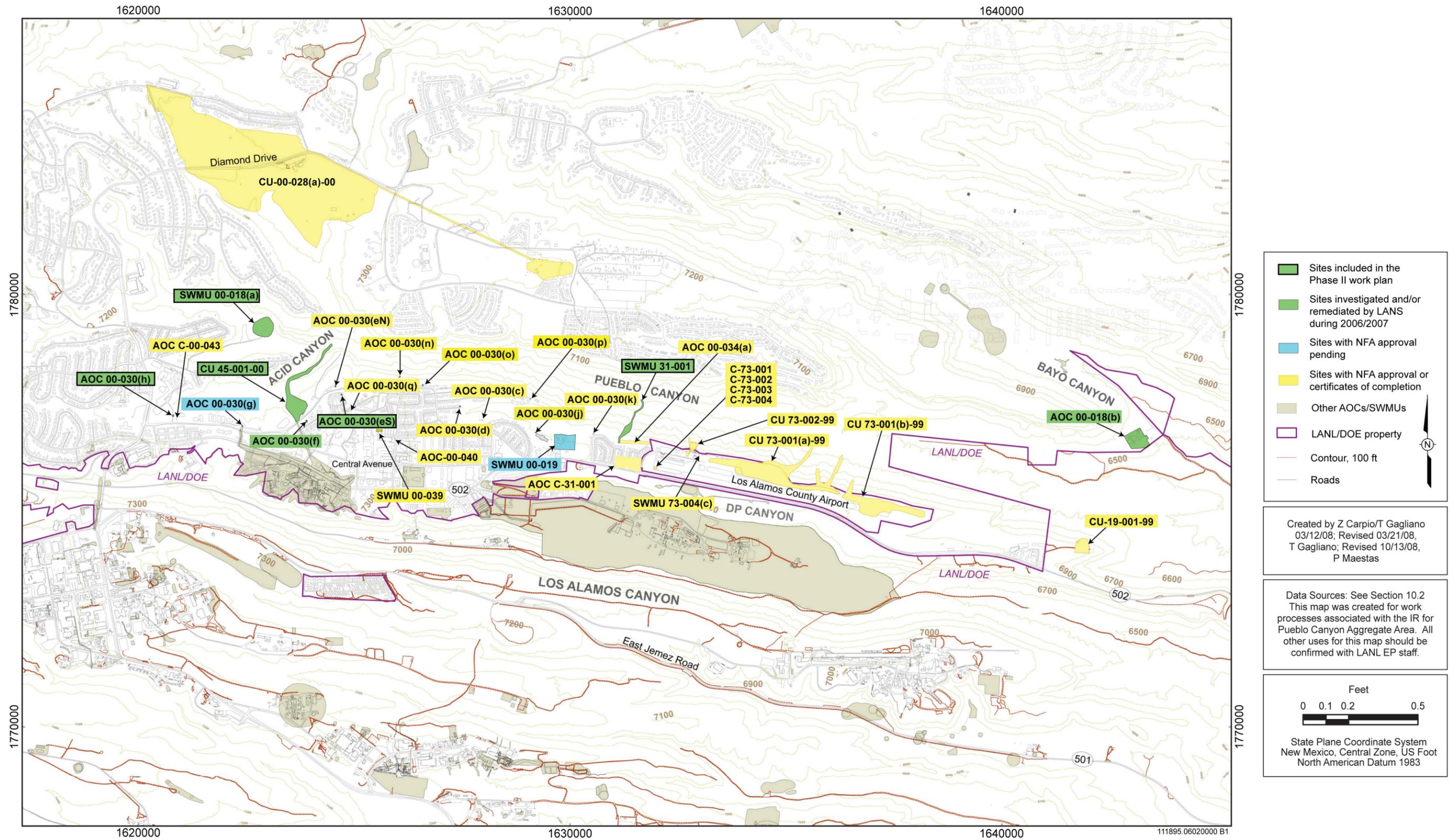


Figure 1.1-2 Location and status of SWMUs and AOCs within the Pueblo Canyon Aggregate Area

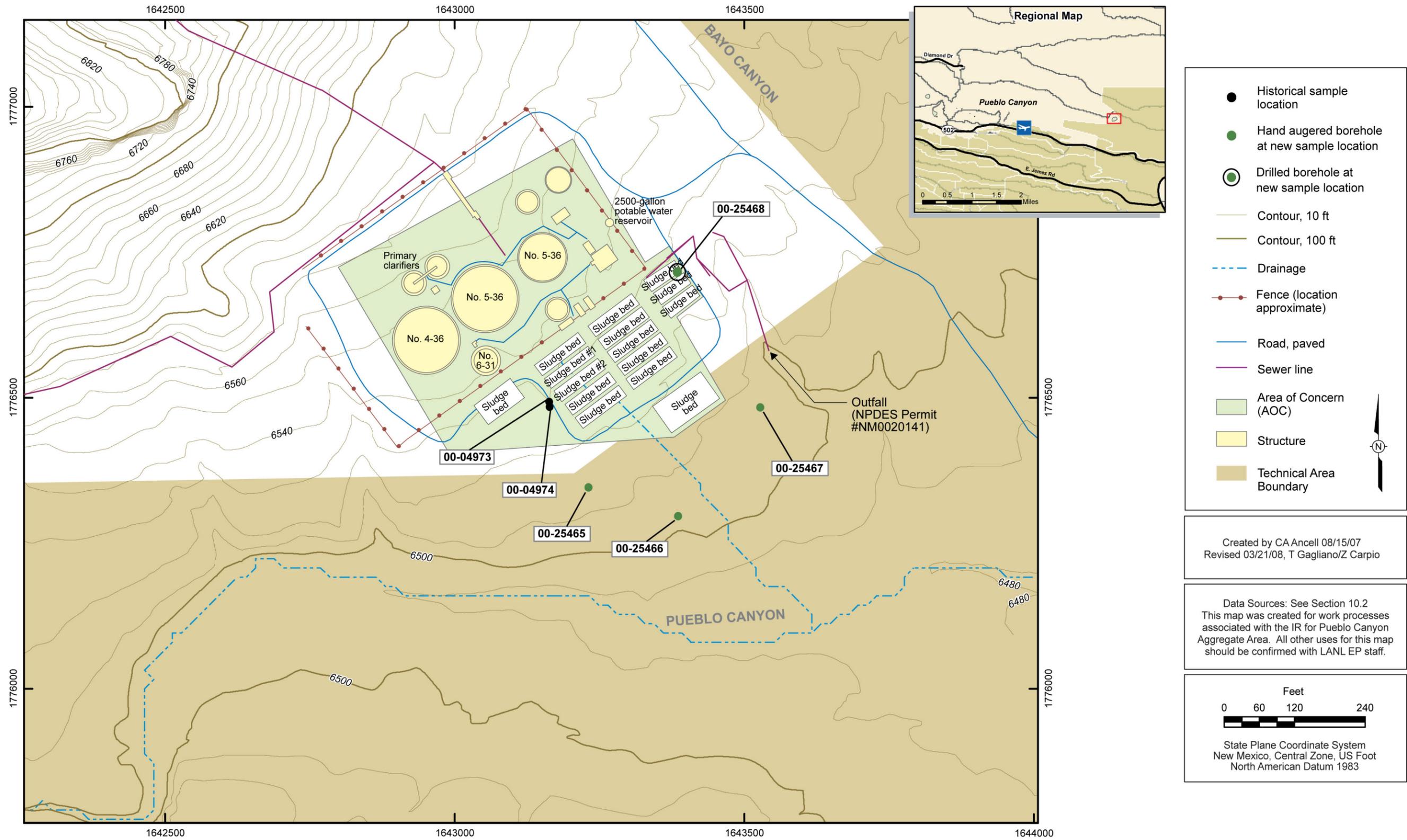


Figure 2.3-1 Site layout and sampling locations at AOC 00-018(b)

**Table 2.4-1
Summary of Inorganic Chemicals above BVs at AOC 00-018(b)**

Sample ID	Location ID	Depth (ft bgs)	Media	Antimony	Cadmium	Copper	Iron	Mercury	Nitrate	Perchlorate	Selenium	Silver	Zinc
Soil/Fill BV^a				0.83	0.4	14.7	21500	0.1	na^b	na	1.52	1	48.8
0100-96-0561	00-04973	33.00–35.50	Soil	12 (UJ) ^c	0.62 (U) ^d	— ^e	—	0.12 (U)	—	—	—	2.5 (U)	—
0100-96-0563	00-04973	54.50–56.50	Soil	13 (UJ)	0.66 (U)	—	—	0.13 (U)	—	—	—	2.6 (U)	—
0100-96-0564	00-04974	16.00–17.00	Soil	11 (UJ)	0.57 (U)	—	—	0.11 (U)	—	—	—	2.3 (U)	—
0100-96-0565	00-04974	31.50–32.60	Soil	13 (UJ)	0.64 (U)	—	—	0.13 (U)	—	—	—	2.6 (U)	—
0100-96-0566	00-04974	51.50–52.50	Soil	11 (UJ)	0.56 (U)	—	—	0.11 (U)	—	—	—	2.2 (U)	—
RE00-06-66946	00-25465	0.00–0.50	Soil	—	0.576 (U)	—	—	—	1.14 (J)	—	1.73 (U)	—	—
RE00-06-66947	00-25465	1.00–1.50	Soil	—	0.507 (U)	—	—	—	0.86 (J)	—	—	—	—
RE00-06-66948	00-25465	10.00–10.50	Soil	—	0.542 (U)	—	—	—	1.24	0.00566	1.63 (U)	—	—
RE00-06-66951	00-25466	0.00–0.50	Soil	—	0.532 (U)	—	—	—	—	—	1.6 (U)	—	—
RE00-06-66952	00-25466	1.00–1.50	Soil	—	0.534 (U)	—	—	—	—	—	1.6 (U)	—	—
RE00-06-66953	00-25466	10.00–10.50	Soil	—	0.494 (U)	—	—	—	—	0.00455	—	—	—
RE00-06-66956	00-25467	0.00–0.50	Soil	—	0.572 (U)	—	—	—	3.31	—	1.72 (U)	—	—
RE00-06-66957	00-25467	1.00–1.50	Soil	—	0.542 (U)	—	—	—	3.97	—	1.63 (U)	—	—
RE00-06-66958	00-25467	10.00–10.50	Soil	—	0.511 (U)	—	—	—	2.2	0.00211	1.53 (U)	—	—
RE00-06-66964	00-25468	6.40–6.70	Fill	—	0.545 (U)	—	—	—	43.1	—	1.64 (U)	—	—
RE00-06-66965	00-25468	8.50–8.80	Fill	—	0.559 (U)	—	—	—	84.6	—	1.68 (U)	—	—
0100-96-0572	n/a ^f	0.00–0.00	n/a	—	—	55.3	21700	0.492	—	—	—	8.96	113

Notes: Units are mg/kg.

^a BVs are from LANL (1998, 059730).

^b na = Not available.

^c UJ = The analyte was not positively identified in the sample, and the associated value is an estimate of the sample-specific detection or quantitation limit.

^d U = The analyte was analyzed for but not detected.

^e — = If analyzed, sample result is less than BV. If no BV is available, analyte was not detected.

^f n/a = Not applicable (dried sludge).

**Table 2.4-2
Summary of Radionuclides Detected or Detected above BVs/FVs at AOC 00-018(b)**

Sample ID	Location ID	Depth (ft bgs)	Media	Europium-152
Soil BV/FV^a				na^b
0100-96-0561	00-04973	33.00–35.50	Soil	0.451

Note: Units are pCi/g.

^a BVs/FVs are from LANL (1998, 059730).

^b na = Not available.

**Table 2.4-3
Summary of Organic Chemicals Detected at AOC 00-018(b)**

Sample ID	Location ID	Depth (ft bgs)	Media	Acetone	Aroclor-1242	Aroclor-1254	Aroclor-1260	BHC[delta-]	Chlordane[gamma-]	Chloroaniline[4-]
RE00-06-66951	00-25466	0.00–0.50	Soil	— ^a	—	—	0.002 (J) ^b	—	—	—
RE00-06-66956	00-25467	0.00–0.50	Soil	—	—	—	0.0039 (J)	—	—	—
RE00-06-66952	00-25466	1.00–1.50	Soil	—	—	—	—	—	—	—
RE00-06-66957	00-25467	1.00–1.50	Soil	—	—	—	0.0035 (J)	—	—	—
RE00-06-66958	00-25467	10.00–10.50	Soil	—	0.013	0.0085	0.0029 (J)	—	—	—
0100-96-0564	00-04974	16.00–17.00	Soil	0.055	—	—	—	—	—	—
0100-96-0565	00-04974	31.50–32.60	Soil	0.091	—	—	—	—	—	—
0100-96-0561	00-04973	33.00–35.50	Soil	0.12	—	—	—	—	—	—
RE00-06-66964	00-25468	6.40–6.70	Fill	0.0147	—	—	—	—	—	—
RE00-06-66965	00-25468	8.50–8.80	Fill	—	—	0.0015 (J)	—	—	—	—
0100-96-0572	n/a ^c	0.00–0.00	n/a	—	—	—	—	0.00992	0.042	0.48 (J)

Table 2.4-3 (continued)

Sample ID	Location ID	Depth (ft bgs)	Media	DDD[4,4'-]	DDE[4,4'-]	Dichlorobenzene[1,4-]	Dieldrin	Toluene	Xylene[1,3-] + Xylene[1,4-]
RE00-06-66951	00-25466	0.00–0.50	Soil	—	—	—	—	0.0215	—
RE00-06-66956	00-25467	0.00–0.50	Soil	—	—	0.000396 (J)	—	—	—
RE00-06-66952	00-25466	1.00–1.50	Soil	—	—	—	—	—	—
RE00-06-66957	00-25467	1.00–1.50	Soil	—	—	—	—	—	—
RE00-06-66958	00-25467	10.00–10.50	Soil	—	—	—	—	—	—
0100-96-0564	00-04974	16.00–17.00	Soil	—	—	—	—	—	—
0100-96-0565	00-04974	31.50–32.60	Soil	—	—	—	—	—	—
0100-96-0561	00-04973	33.00–35.50	Soil	—	—	—	—	—	—
RE00-06-66964	00-25468	6.40–6.70	Fill	—	—	—	—	0.00101 (J)	0.000361 (J)
RE00-06-66965	00-25468	8.50–8.80	Fill	—	—	—	—	—	—
0100-96-0572	n/a	0.00–0.00	n/a	0.0142	0.00848	0.000501 (J)	0.0116	—	—

Notes: Units are mg/kg.

^a — = If analyzed, sample result is not detected.

^b J = The analyte was positively identified, and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis.

^c n/a = Not applicable (dried sludge).